REMARKS

This Amendment is in response to the Office Action that was mailed on May 7, 2002. New claim 22 is derived from original claim 1, rearranged without change of scope in order to enhance its readability. Claim 1 as amended follows the rearranged format which appears in claim 22, but specifies that the reaction is conducted in the presence of molecular oxygen and by catalysis of a specified class of imide compounds. Claims 2, 3, 14, and 18 have been simplified in view of claim 1 as amended. No new matter has been introduced by this Amendment. Claims 1-3 and 14-22 are in the application.

Regarding the requirement for restriction, which has been made final by the Examiner, claims 4-13 (classified by the Examiner in Groups III-X) have been canceled, in order to expedite the prosecution of this application. Applicants respectfully reiterate their request that the requirement for restriction be modified and that the claims remaining in the application be examined on their merits. The relatedness of the remaining claims is addressed in the discussion of the rejection of record hereinbelow.

Claims 1, 2, and 21 were rejected under the second paragraph of 35 USC 112 as failing to define the invention properly. This rejection is respectfully traversed.

First, the Examiner alleged that the claims were rendered indefinite by the terminologies "organic compound", "compound capable of forming a stable radical", and "oxygen-atom-containing compounds". None of these terminologies is *per se* indefinite, particularly to the sophisticated chemistry experts to which the present disclosure is directed. Also, each of these terminologies is qualified in the claims. The "organic compound" is a reaction product of compounds (A)

and (B). The "compound capable of forming a stable radical" is selected from compounds (A1), (A2), and (A3). The "oxygen-atom-containing compounds" are those which have a carbon-hydrogen bond at the adjacent position to an oxygen atom and which are capable of forming a stable radical. Finally, each of these terminologies is supported by explanatory disclosure in Applicants' lengthy specification.

Second, the Examiner indicates that synthetic processes are classified by the PTO based upon the products which they produce, and that the present claims would therefore fall within a large number of different subclasses. The statute does not require that applicants define their invention in terms of the PTO classification system, but only that applicants particularly point out and distinctly claim what they regard as their invention. In this case, Applicants' invention relates to the use of a particular class of imide compounds to catalyze a class of reactions. "Specifically, the invention relates to a process of allowing two compounds to react with each other in the presence of a specific imide compound and a radical generator with respect to the imide compound to yield a product of an addition or substitution reaction or an oxidized product thereof by a radical mechanism." Specification, page 1. Since all of the processes of the present invention require the utilization of the specified imide compound, any search for relevant prior art should presumably include a search keyed to the imide compounds. In any case, search considerations are believed to be irrelevant to considerations of compliance with 35 USC 112.

The presently claimed synthetic process involves the reaction of two classes of compounds, designated in claims 1 and 22 and (A) and (B). Claim 2 reacts a species of (A) designated as (A11) and a species of (B) designated as (B11). Claim 3 reacts a species of (A) designated as (A11) and a species of (B) designated as (B12). Claim 14 reacts a species of (A) designated as (A12) and a

species of (B) designated as (B13). Claim 15 reacts a species of (A) designated as (A13) and a species of (B) designated as (B11). Claim 16 reacts a species of (A) designated as (A31) and a species of (B) designated as (B11). Claim 17 reacts a species of (A) designated as (A31) and a species of (B) designated as (B14). Claim 18 reacts a species of (A) designated as (A31) and a species of (B) designated as (B15). Claim 19 reacts a species of (A) designated as (A11) and a species of (B) designated as (B21). Claim 20 reacts a species of (A) designated as (A32) and a species of (B) designated as (B22). Claims 1, 21, and 22 are generic as to compounds (A) and (B).

Clearly, claims 1-3 and 14-22 define generic and specific aspects of a single invention in the manner prescribed by the second paragraph of 35 USC 112. Accordingly, withdrawal of the rejection of record and allowance of this application as amended, is respectfully solicited.

Conclusion

If the Examiner has any questions concerning this application, he is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8000 in the Washington, D.C. area.

The Examiner is respectfully requested to return to Applicants an initialed copy of the Form PTO-1449 that was filed concurrently with the present application papers on August 11, 2000.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit

Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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RCS/RG
Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 4-13 have been canceled.

The claims have been amended as follows:

1. A process for producing an organic compound which is an addition or substitution reaction product of a compound (A) and a compound (B) or an oxidized product thereof, said process comprising the step of allowing

(A) a compound capable of forming a stable radical and being selected from

(A1) oxygen-atom-containing compounds each having a carbon-hydrogen bond at the adjacent position to an oxygen atom,

(A2) carbonyl-group-containing compounds, and

(A3) compounds each having a hydrocarbon group with a methine carbon atom

to react with

(B) a radical scavenging compound selected from

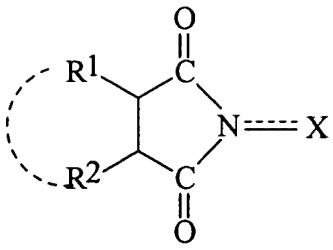
(B1) unsaturated compounds,

(B2) compounds each having a hydrocarbon group with a methine carbon atom, and

(B3) heteroatom-containing compounds,

provided that if a 1,2-dicarbonyl compound or its hydroxy reductant is used as the compound (A), the compound (B) is a radical scavenging compound selected from the compounds (B1) and (B3),

in the presence of a catalytic imide compound and in the presence of molecular oxygen, by catalysis of the imide compound, wherein the imide compound is shown by the following formula (1):



(1)

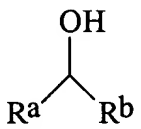
wherein each of R^1 and R^2 is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R^1 and R^2 may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R^1, R^2, or to the double bond or aromatic or non-aromatic ring formed together by R^1 and R^2,

[and in the presence of oxygen and/or a radical generator with respect to said imide compound,]

to yield a product of an addition or substitution reaction of said compound (A) and said compound (B) or an oxidized product thereof.

2. (twice amended) A process for producing an organic compound according to claim 1, wherein

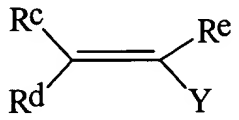
compound (A) is (A11) an alcohol shown by the following formula (2):



(2)

wherein each of R^a and R^b is, identical to or different from each other, a hydrogen atom or an organic group, where R^a and R^b may be combined to form a ring with the adjacent carbon atom, [is allowed to react with] and

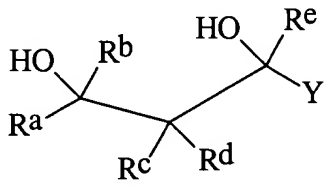
compound (B) is (B11) an active olefin shown by the following formula (3):



(3)

wherein each of R^c, R^d, and R^e is, identical to or different from one another, a hydrogen atom or an organic group, and Y is an electron attracting group, where R^c, R^d, R^e, and Y may be combined to form a ring with the adjacent carbon atom or carbon-carbon bond, [in the presence of molecular oxygen by catalysis of the imide compound of the formula (1) to yield] and

wherein the organic compound which is an addition or substitution reaction product or an oxidized product thereof is a 1,3-dihydroxy compound shown by the following formula (4):

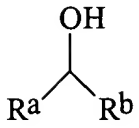


(4)

wherein R^a, R^b, R^c, R^d, R^e, and Y have the same meanings as defined above.

3. (twice amended) The process for producing an organic compound according to claim 1, wherein

compound (A) is (A11) an alcohol shown by the following formula (2):

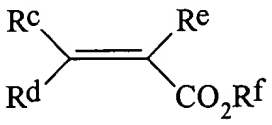


(2)

wherein each of R^a and R^b is, identical to or different from each other, a hydrogen atom or an organic group, where R^a and R^b may be combined to form a ring with the adjacent carbon atom,

and

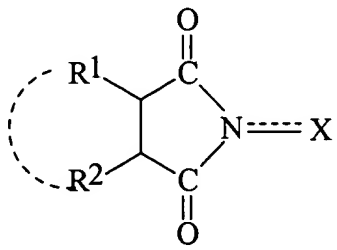
compound (B) is (B12) an α,β-unsaturated carboxylic acid derivative shown by the following formula (5):



(5)

wherein each of R^c, R^d, R^e, and R^f is, identical to or different from one another, a hydrogen atom or an organic group, where R^c, R^d, and R^e may be combined to form a ring with the adjacent carbon atom or carbon-carbon bond,

[and in the presence of molecular oxygen, by catalysis of the imide compound, wherein the imide compound is shown by the following formula (1):

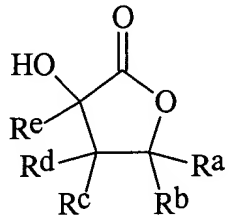


(1)

wherein each of R^1 and R^2 is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl

group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R^1 and R^2 may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R^1, R^2, or to the double bond or aromatic or non-aromatic ring formed together by R^1 and R^2, to yield]

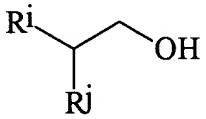
and wherein the organic compound which is an addition or substitution reaction product or an oxidized product thereof is an α-hydroxy-γ-butyrolactone derivative shown by the following formula (6):



(6)

wherein R^a, R^b, R^c, R^d, and R^e have the same meanings as defined above.

14. (twice amended) A process for producing an organic compound according to claim 1, wherein compound (A) is [said process comprising the step of allowing] (A12) an alcohol shown by the following formula (2a):



(2a)

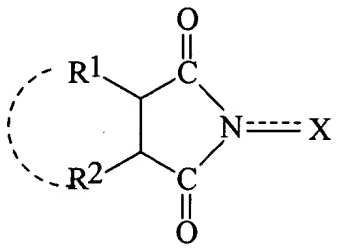
wherein each of R^i and R^j is, identical to or different from each other, a hydrogen atom or an organic group, where R^i and R^j may be combined to form a ring with the adjacent carbon atom, and compound (B) is

[to react with] (B13) an active olefin shown by the following formula (3a):

(3a)

wherein each of R^d and R^e is, identical to or different from each other, a hydrogen atom or an organic group; and Y is an electron attracting group, where R^d, R^e and Y may be combined to form a ring with the adjacent carbon atom or carbon-carbon bond,

[in the presence of molecular oxygen by catalysis of an imide compound shown by the following formula (1):

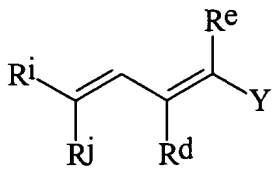


(1)

wherein each of R^1 and R^2 is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R^1 and R^2 may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R^1, R^2, or to the double bond or aromatic or non-aromatic ring formed together by R^1 and R^2,] and wherein the organic

compound which is an addition or substitution reaction product or an oxidized product thereof is

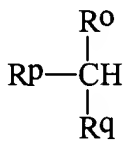
[to yield] a conjugated unsaturated compound shown by the following formula (11):



(11)

wherein R^d, R^e, R^i, R^j and Y have the same meanings as defined above.

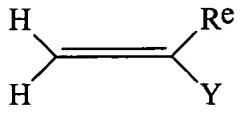
18. (twice amended) The [A] process for producing an organic compound according to claim 1, wherein compound (A) is [said process comprising the step of allowing] (A31) a compound having a methine carbon atom and being shown by the following formula (14):



(14)

wherein each of R^o, R^p and R^q is, identical to or different from one another, an organic group, where R^o, R^p, and R^q may be combined to form a ring with the adjacent carbon atom, and compound (B) is

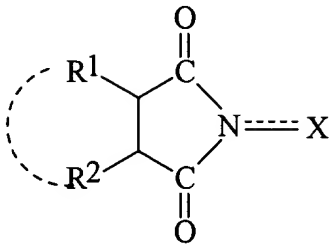
[to react with] (B15) an active olefin shown by the following formula (3c):



(3c)

wherein R^e is a hydrogen atom or an organic group; and Y is an electron attracting group,

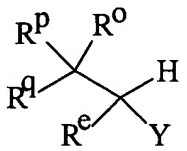
[in the presence of molecular oxygen by catalysis of an imide compound shown by the following formula (1):



(1)

wherein each of R^1 and R^2 is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R^1 and R^2 may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R^1, R^2, or to the double bond or aromatic nor non-aromatic ring formed together by R^1 and R^2,] and wherein the organic compound which is an addition or substitution reaction product or an oxidized product thereof is

[to yield] an organic compound shown by the following formula (18):



(18)

wherein R^e, R^o, R^p, R^q, and Y have the same meanings as defined above.